Bridge Inspector User Group Meeting Minutes

7/20/2015 – Hill Farms State Office Building, Madison, WI

Agenda

1) Previous Agenda Items
    a. Scheduling Report Enhancements
        i. We look to add a column for additional inspections required so that each structure ID only has one line on the report. Additionally, we will add a column for the municipality of the bridge.
            1. Action Item 1
                a) Assigned to: Travis and Ben
                b) Formulate an enhanced report that will cover the desired updates
    b. Quick Assessment Chart for NBI Deck Rating
        i. Is this table appropriate? Where did it come from? Does Central Office want to revisit this table?
            1. Action Item 2
                a) Assigned to: Central Office Staff
                b) Reevaluate the appropriateness of this chart and be sure to emphasize that it is a guideline and not a cut-and-dry definition
    c. Debonding vs. Delamination
        i. Should debonding be treated differently than delamination as it pertains to the NBI rating of the Deck? Should the Wearing Surface be evaluated as part of the NBI of the Deck?
            1. Action Item 3
                a) Assigned to: Central Office Staff
                b) Come up with passages from any coding guides to help us determine an answer for these questions. This item was pushed back to the next User Group Meeting.
    d. Can anyone think of any possible tunnels that we might consider to be part of the new NTIS (National Tunnel Inspection Standards).
        i. Those tunnels that were thought of were already included on the list produced by Central Office before the meeting.
        ii. Further guidance regarding the NTIS will come from Central Office.
    e. How are the NDT/FC consultants working out? Anything we should be concerned with or look to change as we go about utilizing them in the future?
        i. They're doing alright. We have yet to get back reports from them.
        ii. In both cases so far neither inspector seemed prepared for the upcoming inspections. They had no plans, reports, or additional documents ready ahead of time. This might be something Central Office needs to work out in drafting the Work Orders or something the Regions need to coordinate more with the consultant on. In pursuing further work orders, Ben will be sure to address these issues.
    f. Hydrodemolition Vendor Presentation
        i. There are several factors that have limited the use of this process in Wisconsin,

including the lack of a Special Provision, contractors aversion to sub-out another company (or buy their own equipment), and the need for a well-thought out Water Control Plan.

ii. Wisconsin would like to try and pursue this method as we recognize some of its benefits and see that it is being implemented successfully in other states.

1. Action Item 4
    a) Assigned to: RBPMs
    b) Let anyone at Central Office know of any potential candidates would could try and utilize this technology on as we pursue piloting this method in state.

iii. A rough estimate given to Central Office by the Vendor was about $200/SY. This estimate included the milling, water-blasting, pressure-washing (clean-up), and Latex-Modified Concrete Overlay. If you would like more information regarding this technology feel free to contact Ben.

2) Tablet Training

3) Asbestos Testing
    a. This topic was originally mandated through the EPA. Caltrans determined that our highway structures fell under the umbrella of what the EPA laid out. Due to some of the strict language in the document, Wisconsin sought to implement this within our state. Admittedly, the rollout could have been smoother as requirements for asbestos testing were not well defined or communicated.
    b. Currently, BOS is seeking to better define more appropriate guidelines for when the testing should be required. BOS is hoping to find exemptions (as other states have) based on factors such as age, size of repair, and location in regards to quarries with known asbestos. When a consensus is reached Central Office will disseminate the information to the Regions.
    c. Once a bridge is tested, BOS believes that it should no longer require tests in the future. One test per bridge should be sufficient. This will be tracked in HSIS so that we won't mistakenly retest a structure. The best way to make sure it's noted in HSIS is to document something within the Inventory portion of HSIS.
    d. There is documentation in the FDM in Section 21-35-45.5 expounding upon the process.

4) Gusset Plate Elements (Element 162) & possible new Elements and Assessments
    a. General consensus seemed to indicate that the below definition was appropriate for which gusset plates should be designated under Element 162.
        i. A gusset plate under Element 162 is defined as a gusset plate connection, within the plane of the truss, connecting two or more primary structural members that constitute a portion of the load path of the truss.
    b. In order to simplify the coding of trusses and more accurately report condition of the primary members of the truss, we considered adding a new assessment for "Overhead Truss Bracing". Someone suggested that we just use Assessment 9250 (Cross Bracing or Struts) that already exists, to capture these members. Originally, this assessment was aimed more towards the substructures units. In the end, the User Group agreed that an assessment for overhead truss bracing would be added.
    c. The User Group also agreed to add a "Spreader Beam" element under an 8000 number to be used for timber slab structures. Locals had been coding it as a Timber Floor Beam

(perhaps not what we wanted), among other things. This element will provide some clarity for how to code the member.

d. The User Group also agreed to add a "Timber Diaphragm" assessment.

5) In-Depth Inspection Requirement for Pin Elements
   a. A few RBPMs noted their opinion that they believe any pin element should receive an In-Depth Inspection with some form of NDT. It was also noted that this has not always been done in the past. After the discussion, no objections were made to the contrary.
   b. In looking to set better guidelines for what needs an In-Depth Inspection, several items need to be considered.
      i. Some programs are not coding Element 161 for Steel Pin Elements (only for the Pin and Hanger Assemblies).
      ii. Some bearings have a Steel Pin Element in them. Should these be coded under Element 161?
      iii. Should there be a size exemption for pins under a certain diameter?
      iv. Perhaps we can inspect pins directly over piers less frequently than 72 months?
      v. Whatever guidance Central Office comes up with, there will be measurable affects on certain local programs.
   c. Action Item 5
      i. Assigned to: Central Office Staff
      ii. Come up with guidance on the In-Depth Inspection requirements for Steel Pin Elements

6) Deck/Superstructure Delineations
   a. Slab
      i. First, the User Group agreed that the Slab Element should be used for this superstructure type and not the Deck Element.
      ii. In looking at how to handle the NBI condition ratings, we consulted the BIRM and course material from the most recent 2-week NHI course. The BIRM stated that the Deck and Superstructure components may have the same rating. The course material (which cited the MBE and the NBI Coding Guide) showed a diagram in which the same element defined the limits for evaluation of both NBI components. The way it was taught in the class is that both components shall have the same rating.
      iii. John questioned that if you have an 18" deep slab but only the top 2" are in poor condition, should the entire superstructure NBI be lowered as it's more the riding surface ("deck") that's in poor shape?
         1. The top 2" will still serve as the compression zone of your superstructure in span and as the cover for your tension reinforcement over the piers (if applicable).
         2. With element level information, we can supplement the NBI ratings with a more detailed evaluation of each element so we can capture cases like this.
      iv. Upon voting for which way to proceed, the User Group called to have the Deck and Superstructure NBIs be the same for slab type superstructures.
   b. Reinforced Concrete Tee-Beam
      i. Historically, the flat portion between girder lines that provides the riding surface of the structure has been coded as a Deck Element. Under the new Element

Defect system an element was added for Reinforced Concrete Top Flange. Both the BIRM and the course material (in extension, the MBE and the Coding Guide) have indicated that the new Top Flange Element should be used in the place of what we have been calling a deck.

ii. Upon voting for which way to proceed, the User Group called to keep using the Deck Element as has been done in the past. A main driving factor for this decision is the simplicity for the locals to proceed with historical coding methods. This superstructure type is almost exclusively on the local side.

iii. In the next revision of our Field Manual we should be explicit in our language that we are going against federal coding guides and reference manuals.

iv. Based on the decision to use the Deck Element, the NBIs for Deck and Superstructure shall be divided along the topmost portion of the girder line, where the chamfer intersects the deck.

v. Also a quick note that Central Office currently has an inquiry out to the FHWA "coding expert" to determine whether the exterior girders of these structures (which also serve as the railing) should be coded just as railings, just as girders, or as both.

c. All adjacent Prestressed Concrete or Reinforced Concrete units

i. Any superstructure constructed in this fashion will not be coded as having a Deck Element.

ii. For **Channel Beams** and **Double-Tee Beams**, the Top Flange Element will be used. NBI Deck will be evaluated based on the top flange portion of the beam. NBI Superstructure will be evaluated based on the condition of the entire beam.

iii. For **Box Beams**, while we agreed that the Deck Element will not be used, there was discussion regarding using the Top Flange Element.

1. Since it is, for the most part, hidden from view during inspections should we be coding this element? Should we evaluate it based on the condition of the wearing surface? While we can use NDT methods (GPR) to image this element, would it be worth the cost? Should we keep it on the inspection report and just keep it unchecked?
2. Assuming we cannot evaluate the Top Flange Element, and since the Top Flange Element defines our NBI Deck how should we go about rating the NBI of the Deck for these type of superstructures? Should we use the condition of the wearing surface?
3. Action Item 6
    a) Assigned to: Central Office Staff
    b) Pull together thoughts on how to proceed with coding of adjacent box beam structures

iv. For **Inverted-Tee Beams**, Element 39/8039 Prestressed Concrete Slab shall be used to define the deck/superstructure. NBIs of Deck and Superstructure shall be the same, as it has been laid out for all slab type superstructures.

d. Box Girders

i. Concrete Box Girders

1. Agreed that the Top Flange Element should be used. NBI Deck condition rating will be based on the condition of the Top Flange Element. NBI Superstructure condition rating will be based on the condition of entire box girder (including the top flange).

ii. Steel Box Girder

1. Deck Element will be used. NBI Deck condition rating will be based on the condition of the Deck Element. NBI Superstructure condition rating will be based on the condition of steel box girder (does not include the deck).

iii. How are multi-cell box girders quantified? Should each cell be a girder line or should the entire cross-section of the box girder be considered a girder line?

1. Action Item 7
    a) Assigned to: Central Office Staff
    b) Seek clarification on how to code

7) Digital Signatures
    a. Travis walked the User Group through the form and how it will work. We anticipate by next refresher training to ensure that all inspectors are signed up to use Digital Signatures. This will allow us to consider HSIS the official bridge file, no longer necessitating that finished reports be printed out, signed, and filed at the office. If you want to maintain a paper bridge file as the official bridge file for a structure just make a note in the Structure Specific Notes.
    b. Central Office is looking for regions to help pilot the system before we roll it out statewide next year.
        i. Action Item 8
            1. Assigned to: RBPMs
            2. Let Travis know if your Region Office would like to pilot the system.

8) Critical Finding Policy
    a. Ben walked the User Group through the policy final draft and how it will work in accordance with submittal timelines and the Critical Finding Report (CFR). He walked through a couple examples as well.
    b. Onset Inspection is the inspection in which the Critical Finding is discovered (usually a Damage or Routine Inspection). This inspection will have the Critical Finding Activity checked and the Initial Assessment Portion of the CFR will be completed and attached.
    c. Follow-up Actions will be formulated by Central Office Staff (for State structures) or a qualified individual (for Local structures).
    d. Close-out Inspection is the inspection in which the completed Follow-up Actions are documented. This inspection (usually an Interim) will have the Critical Finding Activity checked and the entire CFR will be completed and attached. Photo documentation of the completed Follow-up Actions is required.

9) Should an NBI of 2 trigger an increased inspection frequency?
    a. Language directly from the NBI Coding Guide on a condition rating of 2 states that "unless closely monitored it may be necessary to close the bridge until corrective action is taken". If the inspector asserts concern to this level should it be prudent to ensure that we are monitoring the structure?
    b. Response seemed to indicate that Central Office may be trying to automate too much and this decision should be left to the discretion of the Program Manager. An alternative to automatically changing the inspection frequency, would be to alert the designated PM to take a look over the inspection report and assess whether or not they want to establish a more stringent inspection frequency. Central Office will work on implementing a process to accomplish this notification.

c. Should temporary repairs upgrade the NBI or change the inspection frequency? Again response seemed to indicate that this decision should be the responsibility of the PM.

10) Drones Presentation
    a. How does/doesn't the technology fit with your job duties?
        i. Underwater Profiles
        ii. Tool to assess scour during a storm event
        iii. Could be used to get a general assessment after a flood event
        iv. Better access to certain portions of Trusses, Arches, high bridges, and structures with full height abutments in deep water
        v. High water events
        vi. Better to use around electrical lines for inspector safety purposes
        vii. Great alternative to costly lane closures (minimize traffic control)
    b. As it seems that it would be a good idea to add this technology as another tool to the inspector's tool belt, Central Office will be looking for good candidate structures to be used for pilots. We also may try to pursue the pilot on a couple different levels, with WisDOT utilizing a lower-end drone and hiring a consultant to operate a more sophisticated drone.
        i. Action Item 9
            1) Assigned to: RBPMs
            2) If you can think of any structures that might be a good candidate for piloting please let Ben know
    c. Other legal factors to consider when thinking about possible pilot structures are as follows: line of sight with the drone must be maintained at all times, the drone cannot fly over anyone not directly involved in the project, and pre-programmed flight is still currently illegal (cannot yet set a predetermined flight path).

11) Emergency Contracts
    a. Good job guys

12) Quality Control and Quality Assurance Revisions
    a. Ben walked the User Group through the FHWA definition of Quality Control and the approach he is taking in drafting up a section in the Structures Inspection Manual.
    b. As changes are made to better define the Quality Control program it has become evident that our current Quality Assurance program may be a little misguided and as such require some revisions to refocus efforts where they are needed.
    c. In order to address the part of the Quality Control definition relating to "validation of reports" Ben brought up the topic of what qualifies as a sufficient form of Quality Control relating directly to inspection reports. The User Group agreed that inspector rotation (changing inspectors each cycle) is an acceptable form that can be used. We also agreed that just because inspections were done in teams of 2 does not imply that a quality job was done. However, if the 2 inspectors worked side-by-side and checked each others' work as they did the inspection that could satisfy as an acceptable method (what we will call a QC Inspection). Another possibility that was brought up but not discussed thoroughly was having another inspector enter the inspection into HSIS.
    d. At this point it was asked why we were trying to make more work for people to do. It was stated that our program is a quality program and the main goal of drafting a QC portion for our manual was purely to have our processes documented somewhere. Only at the point when FHWA asks us to do more, should we recommend methods for

how to validate the quality of an inspection report.

e. The User Group also discussed the addition of a late inspection notification procedure to ensure inspection frequency compliance. At what point the state steps in with what amount of authority was up for debate. A good first step to helping identify late inspections was agreed upon: if all inspections that were done within that month could be created in HSIS (not completed), Central Office would then have a better idea of where to focus our energies.

f. Action Item 10
   i. Assigned to: Central Office Staff
   ii. Finalize an appropriate Frequency Compliance Procedure and finish up the documentation of the state's Quality Control Program.